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A study of headache in North American primary care: Report for the Ambulatory Sentinel Practice Network

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Recommended Citation

Becker, L A.; Iverson, Donald C.; Read, F M.; Calogne, N; Miller, R S.; and Freeman, W L.: A study of headache in North American primary care: Report for the Ambulatory Sentinel Practice Network 1987, 400-403.

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A study of headache in North American primary care: Report for the Ambulatory Sentinel Practice Network

Abstract

Headache is a common symptom in primary care about which surprisingly little is known. Over a 14-month period 3847 patients making 4940 consecutive visits for headache to 38 primary care practices in the USA and Canada were studied. The clinical characteristics of patients, as well as the diagnostic and therapeutic strategies employed by their doctors, were examined. Visits for headache represented 1.5% of all visits during this period. Most patients (72.0%) made only one visit, and nearly half of the headaches reported were new. Only a small number of patients (3.0%) received a computerized tomographic scan; other investigations were used sparingly, as were referrals to consultants (5.0%) and hospitalizations (2.2%). Drugs (75.2%) and advice (64.5%) were commonly employed, although formal psychotherapy was recommended infrequently (4.5%). It is concluded from this large series that most patients with headache visit primary care practitioners only once; their headaches frequently defy usual diagnostic categorization and often change in character from visit to visit. Moreover, headaches in this series were frequently associated with a variety of causes not often included in discussions of headache aetiology. These findings suggest that the strategies which doctors in primary care devise to diagnose, investigate and manage this common symptom, require further study.

Keywords

study, headache, north, primary, care, report, network, american, sentinel, ambulatory, practice

Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

Publication Details

Becker, L. A., Iverson, D. C., Read, F. M., Calogne, N., Miller, R. S. & Freeman, W. L. (1987). A study of headache in North American primary care: Report for the Ambulatory Sentinel Practice Network. *Journal of the Royal College of General Practitioners*, 37 (302), 400-403.

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A study of headache in North American primary care

REPORT FROM THE AMBULATORY SENTINEL PRACTICE NETWORK

SUMMARY. Headache is a common symptom in primary care about which surprisingly little is known. Over a 14-month period 3847 patients making 4940 consecutive visits for headache to 38 primary care practices in the USA and Canada were studied. The clinical characteristics of patients, as well as the diagnostic and therapeutic strategies employed by their doctors, were examined. Visits for headache represented 1.5% of all visits during this period. Most patients (72.0%) made only one visit, and nearly half of the headaches reported were new. Only a small number of patients (3.0%) received a computerized tomographic scan; other investigations were used sparingly, as were referrals to consultants (5.0%) and hospitalizations (2.2%). Drugs (75.2%) and advice (64.5%) were commonly employed, although formal psychotherapy was recommended infrequently (4.5%). It is concluded from this large series that most patients with headache visit primary care practitioners only once; their headaches frequently defy usual diagnostic categorization and often change in character from visit to visit. Moreover, headaches in this series were frequently associated with a variety of causes not often included in discussions of headache aetiology. These findings suggest that the strategies which doctors in primary care devise to diagnose, investigate and manage this common symptom, require further study.

Introduction

HEADACHE, one of the most frequently encountered symptoms in practice, is the principal reason for over 18 million consultations per year in the United States of America.¹ Although 52% of these visits are to general practitioners or family doctors, little has been written about headache from the primary care perspective.

Population studies indicate that although 70–80% of adults experience headaches,^{2,3} most have never consulted a physician for this problem.^{4,6} Thus, studies of this type are of limited use to primary care practitioners, since the patients who visit a doctor with a headache may be different from those who do not. Similarly, studies from specialized headache clinics deal with highly selected subsets of patients with chronic refractory headaches and rarely mention acute headaches of recent onset which account for half of all consultations for headache.¹

The study reported here was undertaken to determine the clinical characteristics of headaches in primary care patients, as well as the diagnostic and therapeutic strategies employed by their clinicians.

Method

One hundred and twenty American and Canadian primary care practitioners in the 38 practices of the Ambulatory Sentinel Practice Network (ASPN) participated in the study. The purpose,

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policies and methods of the network have been described elsewhere.⁷ From 1 November 1982 to 31 December 1983, the practitioners recorded data about each consultation at which headache was discussed, investigated or treated. The doctors reported weekly, using pocket-sized cards designed for rapid completion. Selected demographic data, headache characteristics, diagnoses, diagnostic tests, treatment recommendations, referrals and hospitalizations were recorded at each visit.

Headaches were defined as 'new' if the patient had not had a similar attack during the preceding two years. Headaches present only during episodes of febrile illness were classified as 'febrile'. Headache intensity was rated as 'disabling' if the patient was completely unable to perform work or usual activities; 'severe' if the patient was able to carry on activities with difficulty; and otherwise as 'mild'. Diagnostic criteria were based on the definitions proposed by the Ad Hoc Committee on Classification of Headache.⁸ 'Vascular' headaches included classical and common migraine headaches and cluster headaches; 'tension' headaches included tension or muscle contraction headaches; 'other' headaches included those for which the doctor made a specific diagnosis other than 'tension' or 'vascular', while 'no diagnosis/mixed' included all headaches which did not fit into one of these three categories.

All visits for headache made by a single patient were aggregated in chronological order into a patient-oriented data set. Statistical comparisons were made using the chi-square test with $P < 0.05$ considered significant.

Results

Workload

During the 14 months of data collection, 3847 patients of all ages made 4940 visits for headache. This represented 1.5% of all visits to the 38 practices. Figure 1 shows the age-sex distribution of patients making one or more visits for headache.

Most patients (82.1%) made only a single visit for headache while 12.8% made two visits and 2.8% made three visits. Only 90 patients (2.3%) made more than three visits. Of 2142 patients presenting with a new headache 14.0% made a return visit compared with 24.0% of the 1670 patients with chronic headaches ($P < 0.001$) — no classification was recorded for 35 patients.

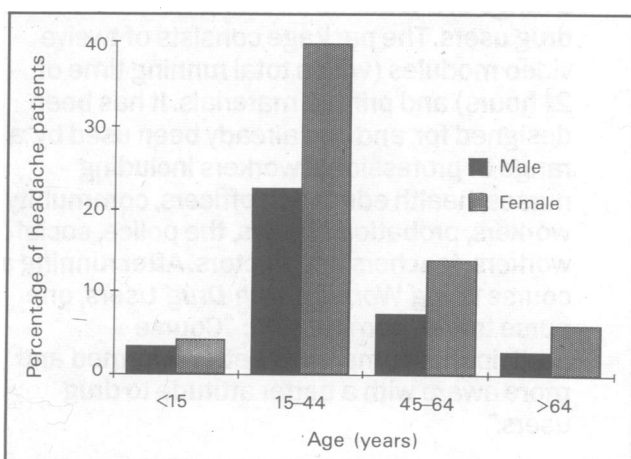


Figure 1. The age-sex distribution of 3847 patients attending with headache.

Clinical features and diagnoses

Table 1 summarizes the clinical findings recorded at all the visits for headache. Few headaches (7.4%) were disabling, although almost half (43.1%) were severe enough to interfere with normal activities. While tension headache or vascular headache were the most frequent diagnoses (30.4% and 23.8%, respectively), almost one-third (31.6%) of visits were for headaches associated with a variety of other causes such as sinusitis, influenza, trauma and mass lesions. Almost half of the visits (47.2%) were for headaches which were new or had changed in character. A large number of visits (13.7%) were for headaches associated with febrile illnesses. This was the most common headache type in children and it occurred more frequently in males than in females.

The doctors were more likely to diagnose a vascular headache in patients who had unilateral symptoms, or if nausea or aura accompanied their headaches than in patients with none of these symptoms (Table 2). Each of these symptoms was more commonly seen with increased headache intensity. Although 54.2% of headaches were diagnosed as tension or vascular headaches (Table 1), 13.6% could not be placed into any of the usual diagnostic categories. Included in this group were patients who had findings of both tension and vascular headaches. These undiagnosed headaches occupied an intermediate position between vascular and tension headaches with respect to both the intensity (Figure 2) and the presence of two or more migraine-like symptoms (Table 2).

Patients who visited more than once were likely to be diagnosed as having more than one type of headache. Of 690 patients who made a second visit only 56.4% presented with exactly the same combination of symptoms on both occasions. More than one-quarter (27.0%) of the 37 patients with all three 'migraine-like' symptoms at the first visit who made a second visit, and 30.4% of the 92 patients who initially presented with two

Table 1. Diagnosis and intensity of headaches presented at 4940 visits.

	Number (%) of visits
<i>Intensity of headache</i>	
Mild	2201 (44.6)
Severe	2131 (43.1)
Disabling	364 (7.4)
Not determined	224 (4.5)
Not recorded	20 (0.4)
<i>Diagnosis of headache</i>	
Tension	1501 (30.4)
Vascular	1177 (23.8)
Other	1559 (31.6)
No diagnosis/mixed	674 (13.6)
Not recorded	29 (0.6)

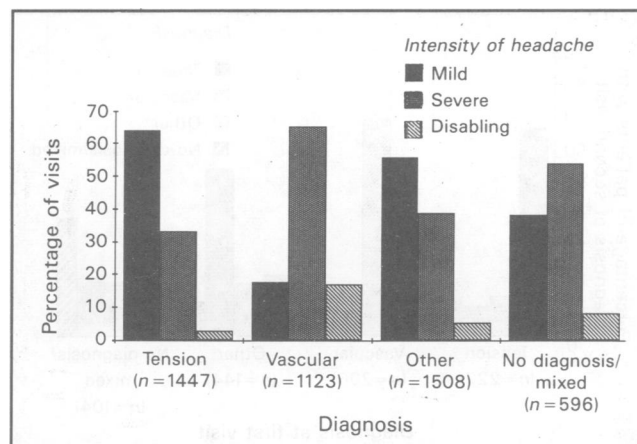


Figure 2. Distribution of visits for headache by diagnosis and intensity of headache. Two hundred and sixty six visits with incomplete data have been excluded.

'migraine-like' symptoms, had none of these symptoms when they returned. Headache intensity also changed for 42.9% of the 690 patients making a second visit. Changes in diagnosis accompanied these symptom changes (Figure 3). Thus, almost one-third of patients given a tension or vascular headache diagnosis at the first visit had a different headache diagnosis at the second visit.

Investigation and management of headache

In most cases, investigation of headache was limited to a history and physical examination. Only a small minority of headache patients received an X-ray (4.5%), electroencephalogram (1.1%) or computerized tomographic scan (3.0%) (Table 3); these tests were rarely repeated. The rate of computerized tomographic scanning was greater at second and third visits than first visits (3.8% and 4.5% versus 2.2%). Referral to consultants and hospitalization were also infrequently used. Nearly three-quarters of patients (71.0%) had no investigations at any visit and were never referred to consultants or hospitalized.

Prescription or non-prescription drugs were advised for three-quarters of the patients (75.2%), and recommendations for specific non-drug therapy were given to almost two-thirds of the patients (64.5%). Only 35.9% of patients were advised to make a return visit; half of these did so.

Discussion

The frequency of visits to primary care practitioners for headache in this study (1.5% of visits) was consistent with the 1–4% reported by others^{1,9–13} and the clinical findings were similar to those found in other primary care studies.^{9,14,15} Although the patients studied here had a higher proportion of vascular and

Table 2. Number of diagnoses of headache by 'vascular' symptoms present (percentages given in parentheses).

Vascular symptoms	Total number of diagnoses ^a	Diagnosis			
		Tension	Vascular	Other	No diagnosis/ mixed
None	2700	1113 (41.2)	321 (11.9)	929 (34.4)	337 (12.5)
Unilateral headache only	685	131 (19.1)	161 (23.5)	280 (40.9)	113 (16.5)
Nausea or vomiting only	738	198 (26.8)	165 (22.4)	246 (33.3)	129 (17.5)
Warning or aura only	67	8 (11.9)	37 (55.2)	11 (16.4)	11 (16.4)
Any two symptoms	524	47 (9.0)	316 (60.3)	85 (16.2)	76 (14.5)
Any three symptoms	197	4 (2.0)	177 (89.8)	8 (4.1)	8 (4.1)

^aDiagnoses were not recorded at 29 visits.

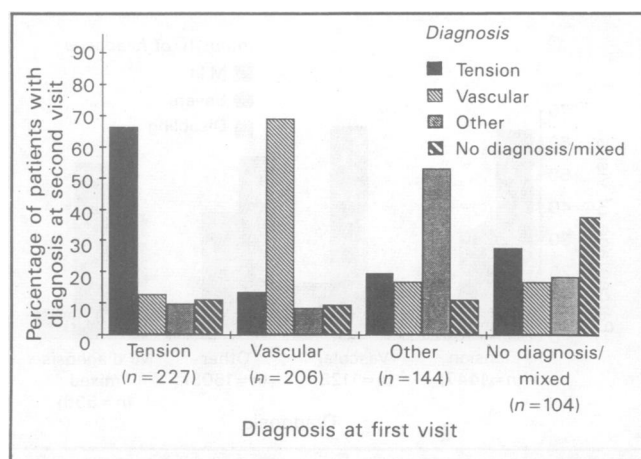


Figure 3. Comparison of diagnoses at first and second visits for headache for 681 patients. Nine patients with incomplete data have been excluded.

Table 3. Diagnostic tests and treatment given to the 3847 patients.

	Number (%) of patients
X-ray	175 (4.5)
CT scan	116 (3.0)
EEG	41 (1.1)
Blood tests	464 (12.1)
Other tests	410 (10.7)
Drugs	2894 (75.2)
Advice	2480 (64.5)
Psychotherapy	172 (4.5)
Return visit	1382 (35.9)
Referral to consultants	192 (5.0)
Hospitalization	83 (2.2)

CT scan = computerized tomographic scan.

EEG = electroencephalogram.

tension headaches than patients making visits to a hospital emergency centre with headache,¹⁶ these diagnoses were present at only slightly more than half of the visits. One-third of the patients had headaches associated with one of a variety of causes, including a large group whose headaches were associated with a febrile illness. Headaches associated with febrile illnesses have been noted in other studies which included patients seeking primary consultation for headache from a general practitioner,⁹ at a hospital emergency centre^{16,17} or at a 'walk-in' clinic.¹⁸

It was surprising that so few patients made more than one visit for headache during the 14-month study period since headache is usually regarded as a chronic problem requiring frequent repeat visits. This creates a diagnostic challenge for North American primary care. Although underreporting may have occurred and some patients may have made repeat visits to another doctor, a similar low frequency of return visits has been noted previously in patients referred to primary care practitioners following a hospital emergency centre visit for headache or following a referral visit to a neurologist.^{18,19} Many headache sufferers appear content to manage their headaches after a single visit.

Many patients in this study could not be designated as having tension or vascular headaches. Almost 14% of headaches did not fit into any specific diagnostic category, and many patients who made return visits appear to have had more than one type of headache. These findings are consistent with Waters'

suggestion²⁰ that 'migraine' and 'muscle contraction' headaches, rather than representing two distinct diagnostic categories, are extremes on a continuum of headache severity, with more severe headaches accompanied by more 'migraine-like' symptoms. This interpretation would explain the pattern in the patients in this study who experienced both types of headaches, as well as those whose headaches could not be classified using only the 'tension' and 'vascular' extremes of the symptom continuum. Other studies of headache symptoms in the general population^{21,22} and in patients attending specialized headache clinics^{23,24} have reached similar conclusions.

The doctors in this study used investigative procedures, referral to consultants and hospitalization sparingly. Although the proportion of visits leading to referral or hospitalization was similar to that reported by the National Ambulatory Medical Care Survey¹ for headaches seen by physicians in all specialties, the doctors studied here were only two-thirds as likely as these physicians to order an X-ray. Neurologists seeing patients referred because of headache²⁵ were much more likely than the doctors in this study to order X-rays (27.5% versus 4.5%) or electroencephalograms (11.9% versus 1.1%), but less likely to ask for blood tests (9.2% versus 12.1%). Hospital emergency centre physicians¹⁷ showed a similar pattern to the doctors studied here, but they ordered more X-rays (>8.9% versus 4.5%) and laboratory investigations (>18.5% versus 12.1%), fewer computerized tomographic scans (0.8% versus 3.0%) and no electroencephalograms.

When this study was carried out, only computerized tomographic scanning was considered useful for the detection of serious intracranial problems.^{26,27} A recent National Institutes of Health consensus development conference²⁷ recommended that computerized tomographic scanning be considered only for those patients whose headaches are 'severe, constant, unusual or associated with abnormal neurological signs'; it also noted that the cost of screening all headache patients with this technique would be prohibitive, and the yield would be extremely low. The clinicians in this study ordered computerized tomographic scans for only 3% of headache patients and were more likely to use this diagnostic tool at the second or third visit.

The findings of this study suggest the need for further investigations of headache in primary care settings. The usefulness of computerized tomographic scans and other newer investigative procedures, such as magnetic resonance imaging, must be investigated in primary care patients, as well as in more highly selected specialist clinic populations. The diagnostic categories for headache may need to be altered. Therapeutic strategies which take advantage of the patients' preferences for self-management of headache should be developed and assessed.

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Acknowledgements

ASPN gratefully acknowledges Drs Barbara Starfield and Kerr White for their excellent suggestions during the preparation and review of the manuscript. The study was supported by grants from the W.K. Kellogg and Rockefeller Foundations.

Participating practices

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INFECTIOUS DISEASES UPDATE

Legionnaires' disease

There continues to be a small but steady flow of cases of pneumonia owing to *Legionella pneumophila*. Cases occur both sporadically and in outbreaks, the latter usually being related to modern technology in the form of air-conditioning and ventilation systems. Early recognition is essential, since drugs such as erythromycin or rifampicin are generally required for treatment and the traditional penicillins used for pneumococcal pneumonia are usually ineffective. Pointers to legionnaires' disease are fever, chest signs (variable in the early stages), sometimes diarrhoea and often mental confusion or hallucinations. Pneumococcal pneumonia can present in this way but usually later in the illness. Each year, around a third of the recognized cases of legionnaires' disease appear to have been contracted abroad, often in Mediterranean countries. These imported cases commonly occur during the summer months, peaking in September and October; so this disease may be the cause of fever in returning holiday-makers at this time of year.

Viral hepatitis

Many viruses can cause hepatitis including the Epstein-Barr virus responsible for glandular fever and cytomegalovirus. However, the clinical picture of an afebrile illness with a gastrointestinal upset resolving as jaundice appears is usually due to hepatitis A, B or non-A non-B. Hepatitis A continues to be endemic in the UK, more so in the north, with occasional local outbreaks for example among school children. The means of spread is usually person-to-person rather than through contaminated food and water which are common means of transmission in poorer countries. Hepatitis B, which is mostly related to drug abuse, caused about 2700 laboratory confirmed cases of acute hepatitis in the UK during 1984 but around 1700 in 1986. The drug abusing community may be becoming 'saturated' with the virus or there may be fewer new intravenous drug abusers or less sharing of needles and syringes.

Non-A non-B hepatitis, which remains a diagnosis of exclusion, appears to have at least two forms. The first, usually seen following transfusion of blood or blood products, is most commonly recognized in North America and Europe. It is also seen in drug abusers. The second has caused epidemics of hepatitis in particular in India, Burma and Algeria and more recently in refugee camps in Somalia and Sudan. This type of non-A non-B hepatitis appears to be spread by the faecal-oral route and like hepatitis A causes illness more commonly in adults than children. There is no evidence of long term complications for those who recover from the initial illness. There is, however, a particularly high mortality rate among pregnant women. There is no evidence that pooled human immunoglobulin, so effective in preventing hepatitis A, gives protection against this different presumed viral infection. This means that good personal and food hygiene are the only effective means of prevention and this can be emphasized for those travelling to countries where the effective separation of sewage from food and water supplies is uncertain.

Gonorrhoea

Since the start of 1987, confirmed gonorrhoeal infections have been on the decline. In Scotland, for example, there were 1843 cases in 1985, 1664 in 1986 and only 463 so far during the first six months of 1987. This appears to have occurred following the public education campaign on the acquired immune deficiency syndrome (AIDS).

Suggestions for topics to include in future updates are welcomed and should be passed to the contributor, Dr E. Walker, Communicable Diseases (Scotland) Unit, Ruchill Hospital, Glasgow G20 9NB (041-946-7120), from whom further information about the current topics can be obtained.